# GOVERNMENT OF INDIA
# AGRICULTURE
# LOK SABHA

UNSTARRED QUESTION NO:4946
ANSWERED ON:26.04.2000
CONSTITUENTS OF MILK
KANTI SINGH;RAGHUVANSH PRASAD SINGH

**Will the Minister of AGRICULTURE be pleased to state:**

(a) whether the constituents of milk of indigenous cows, crossbred cows, buffaloes, goat, sheep, camels vary;

(b) if so, details of each including micronutrients;

(c) whether any study been made on digestibility of different milks;

(d) what are indigenous milk products made from;

(e) whether it is correct that cow ghee is easily digestible whereas buffalo ghee is difficult to digest and cow ghee made according to vedic method is anti-carcinogenic; and

(f) if so, the fact thereof?

## Answer

THE MINISTER OF STATE IN THE MINISTRY OF AGRICULTURE (SHRI HUKUMDEO NARAYAN YADAV)

(a) Yes, Sir.

(b) The milk of indigenous cows, cross bred cows, buffaloes, goats, sheep and camels vary with respect to various milk constituents. The constituents of milk especially the fat and protein within each breed/species, however, vary within a narrow range depending on the season, stage of lactation and type of feed and fodder (Acetate: propionate ratio). The details of each including micronutrients of different milks are given in table 1, 2 and 3 of Annexure I.

(c) No, Sir.

(d) The following indigenous milk products are made from the milks of different species of animals:

Indigenous cows milk : Chhana and Chhana based sweets (Rasogolla, Sandesh, Chamcham, Rajbhog, etc.), Curd, Misti dahi, Ghee, Makkhan, Kheer, Payasam, Basundi.

Cross bred cows milk : Same products as from the indigenous cows milk.

Buffaloes milk : Khoa and Khoa based sweets (Burfi, Peda, Gulabjamun, Kalakand, Milkcake etc.), Rabri, Basundi, Curd, Mistidahi, Makkhan, Ghee, Paneer, Kheer, Payasam, Kulfi, Kunda.

Goat Milk, Sheep Milk & Camel Milk: Certain varieties of cheeses are made from goat and sheep milk, but no indigenous milk product is made from these milks, atleast for trading purposes. If at all some indigenous products are made, they may be produced by the producers of these milks for their domestic consumption.

(e) & (f): No specific details are available on the differences in the digestibility of cow ghee, buffalo ghee and the anticarcinogenic effect of cow ghee made according to Vedic method. However, according to the data reported in Susruta Samhita, ghee made from the cow milk was rated highest and that of the sheep lowest. According to a report, conjugated linoleic acid which is present in the milk of ruminants is an anticarcinogen and milk products prepared by Vedic method or other procedure could demonstrate anticarcinogenic effect when conjugated linoleic acid is present in the product.

ANNEXURE - I

Table 1 : Average composition of milk of different animals.

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Constituent Cows    Buffalo  Goat Sheep  Camel
  Indigenous Crossbred
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| | | | | | | |
|---|---|---|---|---|---|---|
| Water | 86.36 | 87.01 | 82.78 | 87.10 | 80.71 | 87.61 |
| Fat | 4.70 | 4.I4 | 7.38 | 4.25 | 7.90 | 5.38 |
| Protein | 3.20 | 3.25 | 3.60 | 3.52 | 5.23 | 2.96 |
| Lactose | 5.01 | 4.90 | 5.08 | 4.27 | 4.81 | 3.26 |
| Ash | 0.73 | 0.71 | 0.78 | 0.86 | 0.90 | 0.70 |
| Solids Not Fat | 8.94 | 8.86 | 9.46 | 8.65 | 11.39 | 7.01 |
| Total Solids | 13.64 | 12.99 | 17.22 | 12.90 | 19.29 | 12.39 |

Table 2 Comparative mineral status (mg/100 ml) of different Milks

| Name of Mineral | Cow Milk | Buffalo Milk | Goat Milk | Ewes Mill |
|---|---|---|---|---|
| Calcium | 123 | 180 | 134 | 193 |
| Magnesium | 12 | 20 | 14 | 18 |
| Phosphorus | 95 | 95 | 111 | 158 |
| Sodium | 56 | 45 | 50 | 44 |
| Potassium | 141 | 110 | 204 | 136 |
| Sulphur | 30 | 28 | | |
| Citric Acid | 160 | 175 | | |
| Chloride | 119 | 98 | | |
| Iron | 0.45 | 1.24 | 0.05 | 0.10 |
| Copper | 0.13 | 0.21 | - | - - |
| Zinc | 3.00 | 4.60 | 0.30 | |

Table 3: Vitamin content of cow, buffalo and goat milk (values per 100 grams Milk).

| Vitamin | Cow | Buffalo | Goat |
|---|---|---|---|
| Vitamin A (IU) | 174.0 | 160.0 | 182.0 |
| Vitamin C (mg) | 2.0 | 1.0 | 1.0 |
| Thiamine (ug) | 50.0 | 40.0 | 50.0 |
| Riboflavin | 190.0 | 100.0 | 40.0 |
| Niacin (ug) | 100.0 | 100.0 | 300.0 |
| Free folic acid | 5.6 | 3.3 | 0.7 |
| Total folic acid (ug) | 8.5 | 5.6 | 1.3 |
| Vitamin B12 | 0.14 | 0.14 | 0.05 |

Source: Gopalan C; Rama Sastri B.V. and Balasubraminian S.C. Nutritive value of Indian foods, National Institute of Nutrition (ICMR) Hyderabad, 1980